Anxiety Disorders in Pediatric Dentistry and Their Accordance with Parents' Reports

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Abstract

Background: Recent evidence suggests that mental health is associated with dentistry. The aim of the current research was to probe different types of anxiety disorders and phobias in accordance with new changes in the Diagnostic and Statistical Manual of Mental Disorders (DSM5) in pediatric dentistry.

Methods: This is a cross-sectional descriptive study. In this research, 282 children aged 7 to 13 years old, and one of their parents who referred to the dental clinic of School of Dentistry of Shiraz completed Youth Anxiety Measure (YAM-I and YAM-II).

Results: Result of children and parents' opinions showed a high rate of different types of anxiety (24.4% and 22%) and phobia (27.7% and 27.3%) disorders (P<0.001). Based on children and their parent's reports, there were no significant differences between the girls and boys in different types of anxiety disorders. Also, no significant differences were observed between the two groups in different types of phobias except for the blood type from the child's report and the blood and animal type from the parent's report. Children who had an unpleasant dental experience showed higher anxiety disorders and the results from the parents also confirmed this idea (P<0.001). There was a great deal of agreement between children and their parent's opinions about anxiety disorders (P<0.001).

Conclusion: Due to the high rate of anxiety disorders in children, especially in those with unpleasant dental experiences, identification and treatment of these disorders can increase referrals to dentists and consequently improve the oral health.

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Introduction

Lack of cooperation of children in dentistry has been formulated in several methods. Fear and anxiety in dentistry are used as early symptoms of dental phobia. This phobia is an unreasonable and extreme fear or anxiety about the challenge and treatment that affects daily life and leads to long-term avoidance of dental treatment. According to DSM new version (DSM5), anxiety disorders include separation anxiety, selective mutism, social anxiety disorder, panic disorder, generalized anxiety disorder, and phobia.[1] Indeed, fear of going to the physician is one of the functional consequences of fear of blood, injection, and injury.[2]

Dentistry anxiety is associated with oral health and, consequently, quality of life in children.[3, 4] Pathways such as cognitive conditioning, learning visual and news substitution, and verbal and parental threats can be associated with the formation of anxiety and fear of dentistry.[5] In recent years, more attention has been paid to psychological problems associated with dental fear and anxiety so that the results of a systematic review showed that there was a relationship between dental anxiety and psychiatric disorders.[6] Anxiety disorders are the most common problem associated with dental anxiety.[6] Patients who have high dentistry anxiety are more prone to comorbidities such as phobias, mood disorders, and other psychiatric disorders.[6]

Common characteristics of anxiety disorders are excessive fear, anxiety, and behavioral abnormalities related to these symptoms. The 12-month prevalence of anxiety disorders except for specific phobias in Iran was 15.6%, which is higher among women than men.[7] Various studies have reported a high prevalence of dentistry anxiety.[8-14] For example, the results of a review study showed that the prevalence of dental fear and anxiety was 10%. In this regard, the results of a study conducted in Iran (2013) showed that dentistry anxiety was common among children aged 6 to 12 years old so that 29.33% had severe dental anxiety.[9] Some other studies have also addressed the role of demographic variables in dentistry anxiety. The results of a review study showed that age, gender, methods used, previous history and number of dentistry visits, and maternal anxiety were among the factors that affected dentistry anxiety.[15]

Several personal, familial, and environmental elements affect the severity of the child's dental fears.[9] The etiology of dental anxiety is multifactorial, and various factors as gender, age, and socio-economic situation have roles as risk factors. A strong relationship between age and dental anxiety has been established. This relationship appears to be negative and decreases with age.[16, 17]

Various studies have highlighted the important prevalence of dental anxiety in women.[16-18] Gender in interaction with other variables may predispose children to the problem.[16] For example, the result of an Iranian study showed that dental anxiety was correlated with gender, anxiety in parents, a history of extraction, and irregular, asymptomatic dental visits in 5- and 9-year-old children.[9] Also, children who had a history of extraction and chronic illness were more likely to be anxious than those with no experience of this form of treatment.[19, 20]

In recent years, more attention has been paid to the psychological disorders associated with dentistry anxiety, so some researchers have expressed anxiety and depression in these people.[21-30] However, the status of different types of anxiety disorders, especially concerning the parents' report, has not been examined. Identification and treatment of these disorders can increase referrals to dentists and consequently improve oral health.

The purpose of the current research was to examine the rate of anxiety disorders in coordination with recent changes in DSM in pediatric dentistry patients aged 7 to 13 years old who referred to the dental clinic of Shiraz University of Medical Sciences (SUMS).

Methods

The study protocol was approved by the ethics committee of Shiraz University of Medical Sciences (IR.SUMS.REC.1399.667). The statistical population of this study included all boys and girls aged 7 to 13 years old who were referred to the dental clinic of School of Dentistry of Shiraz from February 2020 to May 2021 year. The inclusion criteria were 7-13-year old age males and females who had at least one grade-school education with parents who had at least fifth-school education, and willingness to participate in this research. The exclusion criteria were the inability to complete the questionnaire due to physical and mental problems and unwillingness to participate in the research. Three hundred children and one of their parents were selected by available sampling and enrolled in the study by completing the Youth Anxiety Measure for DSM-5 (YAM-5). After explaining the purpose of the research and obtaining informed consent, the researcher administered the questionnaire.

Youth Anxiety Measure for DSM-5 (YAM-5): the YAM questionnaire is designed to assess the symptoms of anxiety disorders based on DSM-5 in children and adolescents. The first part contains 28 questions that measure the main anxiety disorders. The second part measures specific phobias such as animal, blood-injection-injury, natural environment, and situational and other types. The questions are scored from zero to three using a Likert style; higher scores indicate greater anxiety and phobia.[31] The reliability and validity of the Persian version of the questionnaire have already been confirmed.[32]

Statistical Analysis

Descriptive statistical methods such as mean, standard deviation, t-test (one-sample and independent), and Pearson correlation coefficient were used to analyze the data.

Results

Before data analysis, 16 questionnaires were excluded from the study due to incomplete answers or selection of the answers based on the same pattern. Also, after reviewing the data, two other questionnaires were excluded due to lack of normal distribution of their data. The final sample consisted of answered questionnaires from 282 children and one of their parents.

Among the final participants, 50.4% were female. The age range was 7-13 (mean age of 9.52 years old, SD=1.36). The level of education was from the first to the eighth grade (mean grade of 3.50, SD=1.39). Regarding the past dental history, 82 participants (29.1%) had an unpleasant history. 114 participants (40.4%) had seen the dentist for the first time. Fifty-nine participants (20.9%) reported severe pain, 58 (20.6%) reported spontaneity pain, and 93 (33%) others specified routine examination as the cause of their referral. 173 patients' companions (61.3%) were their mothers.

The mean and standard deviation of the subject questionnaire is displayed in Table 1. We classified the scores into three groups: mild (scores below 21), moderate (scores between 22 to 42) and severe, and very severe (scores above 42). Regarding the YAM-I, 44% of the participants had mild, 31.6% moderate and 24.4% severe and very severe anxiety disorders. Also, 51.4% of the parents reported mild, 26.6% moderate, and 22% severe and very severe anxiety disorders. We classified the scores into three groups: mild (scores

below 16.50), moderate (scores Between 16.50 to 33), and severe and very severe (scores above 33). Regarding the YAM-II, 40.8% of the participants reported mild, 36.5% moderate, and 27.7% severe and very severe scores. Also, 39% of the parents reported mild, 33.7% moderate, and 27.3% severe and very severe scores.

Due to limited research in the field of identifying different types of anxiety disorders with YAM, no classification cut-off point has been presented earlier. However, in this study, the scores obtained were

Table 1: Descriptive statistics for the Youth Anxiety Measure for DSM-5 (YAM-5) in children and parents

Variable	Range	M (SD)
YAM-5-I-CF	0-84	27.44 (20.64)
Separation Anxiety	0-18	6.11 (4.68)
Mutism	0-12	3.78 (3.15)
Social Anxiety	0-18	5.93 (4.60)
Panic	0-18	5.30 (4.76)
Generalized anxiety	0-18	6.31 (4.64)
YAM-5-II-CF	0-66	22.50 (15.09)
Animal	0-15	5.69 (3.58)
Blood-Injection-Injury	0-9	4.21 (2.60)
Natural Environment	0-12	4.80 (3.16)
Situational	0-18	4.33 (4.60)
Other Type	0-12	3.44 (3.18)
YAM-5-I-PF	0-84	25.59 (21.35)
YAM-5-II-PF	0-66	24.10 (15.58)

YAM-5-I: Youth anxiety measure for DSM5, section I. major anxiety disorders. YAM-5-I-CF: Youth anxiety measure for DSM5, section I. major anxiety disorders- children form. YAM-5-I-PF: Youth anxiety measure for DSM5, section I. major anxiety disorders- parent form. YAM-5-II-CF: Youth anxiety measure for DSM5, section II, Phobias. - children form. YAM-5-II-PF: Youth anxiety measure for DSM5, section II, Phobias. - parent form. M: mean, SD: Standard deviation

Table 2: Result of one sample T-test of Youth Anxiety Measure for DSM-5 (YAM-5) in children and parents

Variable	M (SD)	Average criteria	Difference	sig
YAM-5-I-CF	27.44 (20.64)	17.21 (12.40)	10.23	0.001
Separation Anxiety	6.11 (4.68)	2.44 (3.06)	3.67	0.001
Mutism	3.78 (3.15)	2.22 (2.23)	1.56	0.001
Social Anxiety	5.93 (4.60)	4.71 (3.70)	1.22	0.001
Panic	5.30 (4.76)	2.49 (3.14)	2.81	0.001
Generalized anxiety	6.31 (4.64)	5.33 (3.90)	0.98	0.001
YAM-5-I-PF	25.59 (21.35)	15.38 (10.20)	10.21	0.001
Separation Anxiety	5.74 (4.71)	2.35 (2.70)	3.39	0.001
Mutism	3.40 (3.27)	2.04 (1.97)	1.36	0.001
Social Anxiety	5.38 (4.84)	4.03 (3.31)	1.37	0.001
Panic	5.15 (4.78)	1.51 (2.26)	3.64	0.001
Generalized anxiety	5.89 (4.74)	5.44 (3.82)	0.45	0.001
YAM-5-II-CF	22.50 (15.09)	11.71 (8.74)	10.79	0.001
Animal	5.69 (3.58)	4.00 (2.89)	1.69	0.001
Natural Environment	4.80 (3.16)	2.44 (2.35)	2.36	0.001
Blood-Injection-Injury	4.21 (2.60)	2.05 (1.95)	2.16	0.001
Situational	4.33 (4.60)	1.51 (2.15)	2.82	0.001
Other Type	3.44 (3.18)	1.71 (1.81)	1.73	0.001
YAM-5-II-PF	24.10 (15.58)	10.02 (6.55)	14.08	0.001
Animal	6.26 (3.57)	4.02 (2.62)	2.24	0.001
Natural Environment	4.94 (3.23)	1.86 (1.94)	3.08	0.001
Blood-Injection-Injury	4.53 (2.50)	2.13 (2.46)	2.40	0.001
Situational	4.41 (4.86)	0.78 (1.16)	3.69	0.001
Other Type	3.93 (3.30)	1.24 (1.46)	2.69	0.001

YAM-5-I: Youth anxiety measure for DSM5, section I. major anxiety disorders. YAM-5-I-CF: Youth anxiety measure for DSM5, section I. major anxiety disorders- children form. YAM-5-I-PF: Youth anxiety measure for DSM5, section I. major anxiety disorders- parent form. YAM-5-II-CF: Youth anxiety measure for DSM5, section II, Phobias. - children form. YAM-5-II-PF: Youth anxiety measure for DSM5, section II, Phobias. - parent form

Table 3: Result of the correlation of child and parent Youth Anxiety Measure for DSM-5 (YAM-5)

	YAM-5-I-CF	YAM-5-I-CF	YAM-5-I-CF	YAM-5-I-CF	Age	Time
YAM-5-I-CF		0.92**	0.67**	0.65**	0.00	0.02
YAM-5-I-PF			0.62**	0.63**	0.00	0.01
YAM-5-II-CF				0.91**	-0.01	-0.04
YAM-5-II-PF					0.01	-0.08
Age						
Time						

YAM-5-I: Youth anxiety measure for DSM5, section I. major anxiety disorders. YAM-5-I-CF: Youth anxiety measure for DSM5, section I. major anxiety disorders- children form. YAM-5-I-PF: Youth anxiety measure for DSM5, section I. major anxiety disorders- parent form. YAM-5-II-CF: Youth anxiety measure for DSM5, section II, Phobias. - children form. YAM-5-II-PF: Youth anxiety measure for DSM5, section II, Phobias. - parent form. **P<0.01

compared with the standard scores of the original YAM.[31]

As presented in Table 2, there was a significant difference between the YAM-I and YAM-II and its subscales from the perspective of the children and parents considering the means of all criteria. Also, all the mean values obtained were higher than the main study. In addition, a similar result was obtained for both children and parents.

Despite lack of normal distribution of data, to compare anxiety disorders in boys and girls, we used the independent t-test due to the high sample size. No significant differences were observed between the two groups comparing different types of anxiety disorders reported by the children and parents. Also, no significant differences were observed regarding different types of phobias except for the blood type from the children's report. Girls were more afraid of blood than boys. Analyzing of the parents' results also showed that they reported more fear of blood and animals for girls than boys.

Independent t-test was used to compare people with pleasant and unpleasant dental experiences. Results showed a significant difference for YAM-I and YAM-II, based on the opinion of the children and the parents. Children who had an unpleasant dental experience reported higher levels of anxiety and phobia. Parents also have confirmed this result.

Correlation coefficient was used to examine the agreement between the children and parents regarding anxiety disorders and phobias. As seen in Table 3, there was a high positive correlation between children's anxiety in terms of themselves and parents' report. Also, a strong correlation was observed between children's phobia and the phobia reported by their parents. No relationship was found between age and the number of visits to the dentist with anxiety and phobia.

Discussion

This study evaluated the rate of the anxiety disorders in children aged 7 to 13 years who referred to the dental clinic of SUMS. Results of the present study showed a high rate of different types of anxiety disorders in children. This finding is consistent with previous research.[6-14] Anxiety disorders are the most common disorders associated with dental anxiety.[6] The status of different types of anxiety disorders and phobias in pediatric dentistry patients has not been assessed earlier and our study is the first study in this regard. Although we did not use a control group to compare the anxiety and fear of children, a large percentage of subjects and their parents reported high scores (severe, and very severe) compared to the previous standard scores. A recent review study showed that these disorders increased in children and adolescents during the Covid-19 pandemic.[33] The signs and symptoms of anxiety disorders and phobias may prevent people from visiting a dentist or adversely affect the needed treatments. Therefore, it is very important to pay attention to the identification and treatment of these disorders in patients referring to dental clinics.

The present study showed no significant differences between girls and boys regarding different types of anxiety disorders. This finding is in not in the same line with the previous research in non-dental conditions, showing higher anxiety disorders in women than men.[7] However, previous studies have not evaluated different types of anxiety disorders and phobias and just focused on dental anxiety or fear. Similar to the results of the previous researches, in the present study, girls reported more fear of blood than boys.[8, 10, 11, 14, 18] Accordingly, it is important to pay more attention to blood phobia in the dental environment, especially for girls, by using clinical interviews with children or parents and screening tools.

Moreover, children who had unpleasant dental experiences showed higher anxiety disorders. This finding is consistent with those of previous investigations.[15, 18, 19] For almost a century, the conditioning of fear and anxiety has been proposed by behaviorists as a status during which a neutral stimulus, followed by repeated pairing with an abhorrent stimulus, evokes fear.[34] Conditioning may be one of the pathways that forms dental anxiety and fear. When a person seeks a negative and direct experience of fear of an object or a frightening situation, he/she is always afraid of that stimulus or situation. A person who is afraid of the needle or the dentist may avoid going to the office next time due to

the fear of bleeding, pain, criticism by the dentist, or other factors.[5]

A high level of compliance was observed between children and their parents about reporting anxiety disorders and phobias in this study. Although more parent-child agreement was expected due to the objectivity of the fear, there was also high agreement regarding mental and internal anxiety. This finding is consitentwith some previous studies.[26, 27] However, controversial results exist in this regard. While some studies have reported that parents tend to overestimate dental fear of their children,[28] others showed that they might not be able to identify their child's dental fears.[29, 30]

Unlike previous studies that have examined dental fear and anxiety, this is the first study to examine the agreement of children and parents on different types of anxiety disorders and phobias. Unlike other studies, no association was found between age and anxiety disorders and phobias.[11, 16, 17] It seems that this lack of association can be justified by the fact that in this study children aged 7 to 13 years old were studied and anxiety decreased with increasing age. Also, no association was found between the number of dental visits and anxiety disorders and phobias. It is understood that in Covid-19 condition hours of dentists' work and their treatment sessions have been reduced,[35] which can affect the results.

This research had limitations. Children or parents might have underestimated or overestimated the anxiety and fear. In addition, this study was conducted at the time of the Covid-19 pandemic when the fear of disease and anxiety increased and may not be an accurate estimation of different types of anxiety disorders and phobias in non-pandemic days. Finally, due to the lack of a classification cut-off point for the questionnaire, there was no precise criterion for measuring anxiety and fears. Future research could help to accurately measure anxiety and fear by comparing a healthy population, people with anxiety disorders, and people visiting dental clinics. Despite the limitations, this study has clinical significance.

Conclusion

Anxiety disorders have importance in dental problem, so they cause people not to go to the physician. Youth Anxiety Measure for DSM-5 (YAM-5) can be used to identify people with anxiety disorders and phobias, especially those with unpleasant dental experience, and girls with blood phobias in dental clinics, and symptoms can be reduced through psychotherapy. It is worth mentioning that due to the high adaptation of parents with children, they can be considered as a reliable source for identifying different types of anxiety and phobias in children.

Authors' Contribution

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